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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,292	01/11/2007	Akiko Yabe	294524US0PCT	5706

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EXAMINER	
KOSLOW, CAROL M	

ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
05/29/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/588,292	YABE ET AL.	
	Examiner	Art Unit	
	C. Melissa Koslow	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

This action is in response to applicants' amendment of 10 March 2009. The substitute abstract of 10 march 2009 is acceptable and thus the objection over the abstract is withdrawn. The new drawings of 10 March 2009 have overcome the objection to the drawings with respect to the hand written corrections. The other objection to the drawing is withdrawn since applicants are correct that the specification teaches "blanket". The amendments to the specification have overcome the objections to the disclosure. The amendments to the claims have overcome the 35 USC 112 rejections. Applicant's arguments with respect to the remaining objection and rejections have been fully considered but they are not persuasive.

The provided definitions of the symbols of the meanings on the search report do not meet the requirement of a concise explanation of JP 2001-214159. The other non-considered references were not cited in the search report. As noted in the previous action, the English equivalents for these all of the non-considered references were consider and cited by the Examiner. Thus the subject matter of these references were considered even if the Japanese language references were not. Applicants are reminded that only one member of a patent family need to be considered.

Claims 16 and 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

New claim 16 teaches one of the phosphors is $BaMgAl_{10}O_{17}$:Eu and Mn. Page 29, line 7 of the originally filed specification teaches one of the phosphors is $BaMgAl_{10}O_{17}$:Eu or Mn.

Thus claim 16 includes new matter. New claim 17 teaches the phosphor has an excitation wavelength showing maximum emission intensity in an excitation spectrum of 388 nm or more and an emission efficiency at 400 nm of 37.4% or more. These ranges are new matter since the specification teaches, in table 1, a maximum emission intensity in an excitation spectrum of 388 nm to 407 nm and an emission efficiency at 400 nm of 37.4-54.9%. The claimed ranges include values exceeding the maximum taught in the table.

Claim1-10 and 12-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are indefininite since it is unclear what is the crystal state that gives the trivalent europium activated red phosphor the claimed properties. The term "long in excitation life" in claim 17 is a relative term which renders the claim indefinite. The term is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 14, 15, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent application publication 2003/0106460; U.S. patent 5,006,503 or U.S. patent 3,398,009.

All three of these references teach phosphors having the claimed properties and resins contaminating these phosphors. Comparative example compound 3 and comparative example 3 teach $Eu(2NFA)_3(TPPO)_2$, which applicants teach has the claimed properties in example 8 in the

specification, and polyvinyl pyrrolidone containing $Eu(2NFA)_3(TPPO)_2$. U.S. patent 5,006,503 teaches preparation 3 and example 1 teaches $Eu(TTA)_3(TPPO)_2$, which applicants teach has the claimed properties in example 1 in the specification; and a cellulose acetate butyrate binder containing $Eu(TTA)_3(TPPO)_2$. U.S. patent 3,398,009 teaches $Eu(TTA)_3$Phen and $Eu(DBM)_3$Phen, which applicants teach has the claimed properties in examples 2 and 6 in the specification, and these compounds in a resin. The references teaches the claimed phosphor and resin composition.

Claims 1-7, 10, 13-15, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 6,051,925.

This reference teaches a light emitting device, for use in an image display unit, comprising a LED, such as a GaN based LED, which emits light having a peak in the range of 370-410 nm and a red phosphor which is a fluorescent Eu complex, such as $Eu(ttfa)_3$Phen or Eu $(tfnb)_3$DPPhen, where ttfa is 1-(2-thenoyl)-4-4-4-trifluoro-1,3-1,3 butanedionate and tfnb is 4,4,4,-trifluoro-1-(2-naphthyl)-1,3-butanedione. Applicants teach these europium complexes have the claimed properties in examples 2 and 9 in the specification. The reference teaches that the phosphor can be dispersed in a resin. Column 2, lines 55-62 teaches a device comprising an LED array which emits light in the range of 370-410 nm, the claimed phosphor as the red phosphor; a green phosphor and a blue phosphor. The reference teaches the claimed device, phosphor and resin composition.

Claims 1-7, 9, 12 and 14-18 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 2004-356358 or JP 2004-352928.

Applicants admitted EP 1,641,048 is the English equivalent to JP 2004-352928 and thus EP 1,641,048 is being used as the translation for JP 2004-352928.

Both of these references teach light emitting devices, which are used in lighting systems, comprising a LED or LD, which emits light in the range of 380-470 nm and one of the phosphors taught in paragraph 33 of JP 2005-356358 or paragraph 40 in EP 1,641,048. Applicants teach taught europium complexes 1, 2, 4, 7 and 9 have the claimed properties in examples 1 and 5-8 in the specification. The taught phosphor is dispersed in a resin. The references teach the device can contain inorganic blue phosphors, such as ZnS:Ag, $BaMgAl_{10}O_{17}$:Eu and $Sr_5(PO_4)Cl$:Eu and green phosphors, such as ZnS:Cu, ZnS:Cu,Al and $BaMgAl_{10}O_{17}$:Eu or Mn; so that the resulting device emits white light. The references teach the claimed device, phosphor and resin composition.

Claim 8 is rejected under 35 U.S.C. 102(a) as being anticipated by JP 2004-352928.

Applicants admitted EP 1,641,048 is the English equivalent to JP 2004-352928 and thus EP 1,641,048 is being used as the translation for JP 2004-352928.

As discussed above, this reference teaches the claimed device and it also teaches an ultraviolet treatment is performed on the device so as to prevent the phosphor from being irradiated with ultraviolet range of 350 nm or less. The reference teaches the claimed device.

Claims 1-7, 9, 10, 13-15, 17 and 18 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. patent application publication 2004/0251809.

Claims 1-7, 9, 10, 13-15, 17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent 7,189,340.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

U.S. patent application publication 2004/0251809 issued as U.S. patent 7,189,340.

Example 8 in both references teach a white light emitting device comprising an LED which emits a wavelength of 460 nm, a yellow emitting inorganic phosphor and $Eu(TTA)_3(TPPO)_2$, which applicants teach has the claimed properties in example 1 in the specification, where the phosphors are dispersed in a resin. The references teach that this device can be used in lighting systems of in image display units. The references teach that the LED can be a GaN based LED. The references teach the claimed device, phosphor and resin composition.

Claims 1-7, 9 and 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,084,250..

U.S. patent 6,084,250 teaches a white light emitting device used in lighting systems comprising a solid state red phosphor, ZnS:Cu as the green phosphor, $BaMgAl_{10}O_{17}$:Eu as the blue phosphor and a UV LED which has a peak emission in the range of 300-370 nm, such as a GaN based one. This peak emission overlaps the claimed LED peak emission range. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383

(CCPA 1960). Also see MPEP 2144.05. The reference teaches the phosphors are dispersed in a resin. Column 3, line 51 through column 4, line 5 teaches that the red phosphor is a fluorescent complex of the general formula Eu^{3+} $(diketone)_3X$, where X can be Phen or DPPhen and the diketone can be ttfa (TTA), DPM or tfnb (2NFA). Applicants show these complexes have the claimed properties in the examples in the specification. The reference suggests the claimed device, phosphor and resin.

Applicants argue that red phosphors in the above reference do not have a triclinic crystal structure nor do they have the claimed properties. With respect to the triclinic argument, the claims are not limited to aromatic group containing trivalent europium β-diketonate phosphors having a triclinic crystal structure, as taught in the examples, and there is no clear teaching in the specification that this is the only crystal state which allows Eu^{3+} containing red phosphors to have the claimed properties. Claims 1, 2 and 5-18 are to any Eu^{3+} containing red phosphors having the claimed properties and includes inorganic and organic phosphors. Claim 3 is to any red fluorescent trivalent europium complex that has the claimed properties and claim 4 is any red fluorescent trivalent europium complex having at least one aromatictic group containing ligand that has the claimed properties. In addition, there has been no showing that the taught red phosphors do not have the argued crystal structure or properties. While applicants point out the differences in the taught processes and that of the examples, there is no showing that these differences produce phosphors that do not have the claimed properties. The rejections are maintained.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/
May 27, 2009

/C. Melissa Koslow/
Primary Examiner

Art Unit 1793